

TEAM LEARNING

THE POTENTIAL WISDOM TEAMS

"By design and by talent," wrote basketball player Bill Russell of his team, the Boston Celtics, "[we] were a team of specialists, and like a team of specialists in any field, our performance depended both on individual excellence and on how well we worked together. None of us had to strain to understand that we had to complement each others' specialties; it was simply a fact, and we all tried to figure out ways to make our combination more effective. . . . Off the court, most of us were oddballs by society's standards—not the kind of people who blend in with others or who tailor their personalities to match what's expected of them."

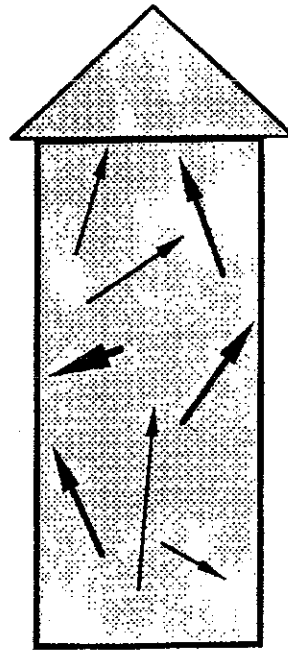
Russell is careful to tell us that it's not friendship, it's a different kind of team relationship that made his team's work special. That relationship, more than any individual triumph, gave him his greatest moments in the sport: "Every so often a Celtic game would heat up so that it became more than a physical or even mental game," he wrote, "and would be magical. The feeling is difficult to describe,

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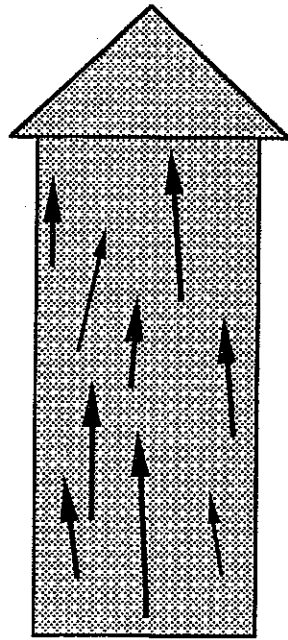
Senge, P. (1990). The Fifth Discipline.
New York: Doubleday.

and I certainly never talked about it when I was playing. When it happened I could feel my play rise to a new level . . . It would surround not only me and the other Celtics but also the players on the other team, and even the referees . . . At that special level, all sorts of odd things happened. The game would be in the white heat of competition, and yet I wouldn't feel competitive, which is a miracle in itself . . . The game would move so fast that every fake, cut, and pass would be surprising, and yet nothing could surprise me. It was almost as if we were playing in slow motion. During those spells, I could almost sense how the next play would develop and where the next shot would be taken . . . To me, the key was that *both* teams had to be playing at their peaks, and they had to be competitive. . . ."

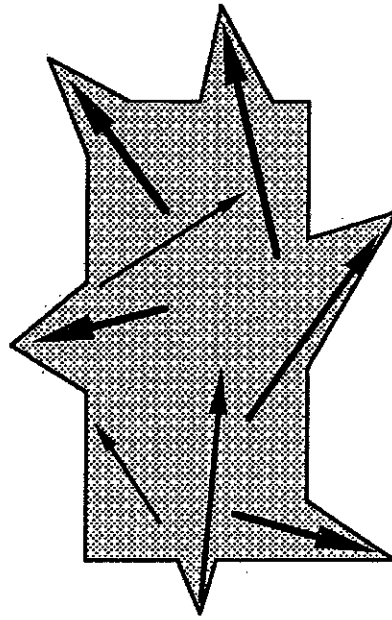
Russell's Celtics (winner of eleven world championships in thirteen years) demonstrate a phenomenon we have come to call "alignment," when a group of people function as a whole. In most teams, the energies of individual members work at cross purposes. If we drew a picture of the team as a collection of individuals with different degrees of "personal power" (ability to accomplish intended results) headed in different directions in their lives, the picture might look something like this:²



The fundamental characteristic of the relatively unaligned team is wasted energy. Individuals may work extraordinarily hard, but their efforts do not efficiently translate to team effort. By contrast, when a team becomes more aligned, a commonality of direction emerges, and individuals' energies harmonize. There is less wasted energy. In fact, a resonance or synergy develops, like the "coherent" light of a laser rather than the incoherent and scattered light of a light bulb. There is commonality of purpose, a shared vision, and understanding of how to complement one another's efforts. Individuals do not sac-



ricify their personal interests to the larger team vision; rather, the shared vision becomes an extension of their personal visions. In fact, alignment is the *necessary condition* before empowering the individual will empower the whole team. Empowering the individual when there is a relatively low level of alignment worsens the chaos and makes managing the team even more difficult:



Jazz musicians know about alignment. There is a phrase in jazz, "being in the groove," that suggests the state when an ensemble "plays as one." These experiences are very difficult to put into words—jazz musicians talk about them in almost mystical terms: "the music flows through you rather than from you." But they are no less tangible for being hard to describe. I have spoken to many managers who have been members of teams that performed at similarly extraordinary levels. They will describe meetings that lasted for hours yet "flew by," not remembering "who said what, but knowing when we had really come to a shared understanding," of "never having to vote—we just got to a point of knowing what we needed to do."

Team learning is the process of aligning and developing the capacity of a team to create the results its members truly desire. It builds on the discipline of developing shared vision. It also builds on personal mastery, for talented teams are made up of talented individuals. But shared vision and talent are not enough. The world is full of teams of talented individuals who share a vision for a while, yet fail to learn. The great jazz ensemble has talent and a shared vision (even if they don't discuss it), but what really matters is that the musicians know how to play together.

There has never been a greater need for mastering team learning in organizations than there is today. Whether they are management teams or product development teams or cross-functional task forces—teams, "people who need one another to act," in the words of Arie de Geus, former coordinator of Group Planning at Royal Dutch/Shell, are becoming the key learning unit in organizations. This is so because almost all important decisions are now made in teams, either directly or through the need for teams to translate individual decisions into action. Individual learning, at some level, is irrelevant for organizational learning. Individuals learn all the time and yet there is no organizational learning. But if teams learn, they become a microcosm for learning throughout the organization. Insights gained are put into action. Skills developed can propagate to other individuals and to other teams (although there is no guarantee that they will propagate). The team's accomplishments can set the tone and establish a standard for learning together for the larger organization.

Within organizations, team learning has three critical dimensions. First, there is the need to think insightfully about complex issues. Here, teams must learn how to tap the potential for many minds to be more intelligent than one mind. While easy to say, there are powerful forces at work in organizations that tend to make the intelligence of the team less than, not greater than, the intelligence of individual team members. Many of these forces are within the direct control of the team members.

Second, there is the need for innovative, coordinated action. The championship sports teams and great jazz ensembles provide metaphors for acting in spontaneous yet coordinated ways. Outstanding teams in organizations develop the same sort of relationship—an "operational trust," where each team member remains conscious of other team members and can be counted on to act in ways that complement each others' actions.

Third, there is the role of team members on other teams. For

example, most of the actions of senior teams are actually carried out through other teams. Thus, a learning team continually fosters other learning teams through inculcating the practices and skills of team learning more broadly.

Though it involves individual skills and areas of understanding, team learning is a collective discipline. Thus, it is meaningless to say that "I," as an individual, am mastering the discipline of team learning, just as it would be meaningless to say that "I am mastering the practice of being a great jazz ensemble."

The discipline of team learning involves mastering the practices of dialogue and discussion, the two distinct ways that teams converse. In dialogue, there is the free and creative exploration of complex and subtle issues, a deep "listening" to one another and suspending of one's own views. By contrast, in discussion different views are presented and defended and there is a search for the best view to support decisions that must be made at this time. Dialogue and discussion are potentially complementary, but most teams lack the ability to distinguish between the two and to move consciously between them.

Team learning also involves learning how to deal creatively with the powerful forces opposing productive dialogue and discussion in working teams. Chief among these are what Chris Argyris calls "defensive routines," habitual ways of interacting that protect us and others from threat or embarrassment, but which also prevent us from learning. For example, faced with conflict, team members frequently either "smooth over" differences or "speak out" in a no-holds-barred, "winner take all" free-for-all of opinion—what my colleague Bill Isaacs calls "the abstraction wars." Yet, the very defensive routines that thwart learning also hold great potential for fostering learning, if we can only learn how to unlock the energy they contain. The inquiry and reflection skills introduced in Chapter 10 begin to release this energy, which can then be focused in dialogue and discussion.

Systems thinking is especially prone to evoking defensiveness because of its central message, that our actions create our reality. Thus, a team may resist seeing important problems more systematically. To do so would imply that the problems arise from our own policies and strategies—that is "from us"—rather than from forces outside our control. I have seen many situations where teams will say "we're already thinking systemically," or espouse a systems view, then do nothing to put it into practice, or simply hold stead-

fastly to the view that "there's nothing we can do except cope with these problems." All of these strategies succeed in avoiding serious examination of how their own actions may be creating the very problems with which they try so hard to cope. More than other analytic frameworks, systems thinking requires mature teams capable of inquiring into complex, conflictual issues.

Lastly, the discipline of team learning, like any discipline, requires practice. Yet, this is exactly what teams in modern organizations lack. Imagine trying to build a great theater ensemble or a great symphony orchestra without rehearsal. Imagine a championship sports team without practice. In fact, the process whereby such teams learn is through continual movement between practice and performance, practice, performance, practice again, perform again. We are at the very beginning of learning how to create analogous opportunities for practice in management teams—some examples are given below and in the chapter on Microworlds.

Despite its importance, team learning remains poorly understood. Until we can describe the phenomenon better, it will remain mysterious. Until we have some theory of what happens when teams learn (as opposed to individuals in teams learning), we will be unable to distinguish group intelligence from "groupthink," when individuals succumb to group pressures for conformity. Until there are reliable methods for building teams that can learn together, its occurrence will remain a product of happenstance. This is why mastering team learning will be a critical step in building learning organizations.

THE DISCIPLINE OF TEAM LEARNING

DIALOGUE AND DISCUSSION³

In a remarkable book, *Physics and Beyond: Encounters and Conversations*, Werner Heisenberg (formulator of the famous "Uncertainty Principle" in modern physics) argues that "Science is rooted in conversations. The cooperation of different people may culminate in scientific results of the utmost importance." Heisenberg then recalls a lifetime of conversations with Pauli, Einstein, Bohr, and the other great figures who uprooted and reshaped traditional physics in the first half of this century. These conversations, which Heisenberg says "had a lasting effect on my thinking," literally gave birth to

many of the theories for which these men eventually became famous. Heisenberg's conversations, recalled in vivid detail and emotion, illustrate the staggering potential of collaborative learning—that collectively, we can be more insightful, more intelligent than we can possibly be individually. The IQ of the team can, potentially, be much greater than the IQ of the individuals.

Given Heisenberg's reflections, it is perhaps not surprising that a significant contributor to the emerging discipline of team learning is a contemporary physicist, David Bohm. Bohm, a leading quantum theorist, is developing a theory and method of "dialogue," when a group "becomes open to the flow of a larger intelligence." Dialogue, it turns out, is a very old idea revered by the ancient Greeks and practiced by many "primitive" societies such as the American Indians. Yet, it is all but lost to the modern world. All of us have had some taste of dialogue—in special conversations that begin to have a "life of their own," taking us in directions we could never have imagined nor planned in advance. But these experiences come rarely, a product of circumstance rather than systematic effort and disciplined practice.

Bohm's recent work on the theory and practice of dialogue represents a unique synthesis of the two major intellectual currents underlying the disciplines discussed in the preceding chapters: the systems or holistic view of nature, and the interactions between our thinking and internal "models" and our perceptions and actions. "Quantum theory," says Bohm, "implies that the universe is basically an indivisible whole, even though on the larger scale level it may be represented approximately as divisible into separately existing parts. In particular, this means that, at a quantum theoretical level of accuracy, the observing instrument and the observed object participate in each other in an irreducible way. At this level perception and action therefore cannot be separated."

This is reminiscent of some of the key features of systems thinking, which calls attention to how what is happening is often the consequence of our own actions as guided by our perceptions. Similar questions are raised by the theory of relativity, as Bohm suggested in a 1965 book, *The Special Theory of Relativity*.⁴ In this book, Bohm started to connect the systems perspective and mental models more explicitly. In particular, he argued that the purpose of science was not the "accumulation of knowledge" (since, after all, all scientific theories are eventually proved false) but rather the creation of "mental maps" that guide and shape our perception and

action, bringing about a constant "mutual participation between nature and consciousness."

However, Bohm's most distinctive contribution, one which leads to unique insights into team learning, stems from seeing thought as "largely as collective phenomenon." Bohm became interested fairly early in the analogy between the collective properties of particles (for example, the system wide movements of an "electron sea") and the way in which our thought works. Later, he saw that this sort of analogy could throw an important light on the general "counter-productiveness of thought, as can be observed in almost every phase of life. "Our thought is incoherent," Bohm asserts, "and the resulting counterproductiveness lies at the root of the world's problems." But, Bohm asserts, since thought is to a large degree collective, we cannot just improve thought individually. "As with electrons, we must look on thought as a systemic phenomena arising from how we interact and discourse with one another."

There are two primary types of discourse, dialogue and discussion. Both are important to a team capable of continual generative learning, but their power lies in their synergy, which is not likely to be present when the distinctions between them are not appreciated.

Bohm points out that the word "discussion" has the same root as percussion and concussion. It suggests something like a "Ping-Pong game where we are hitting the ball back and forth between us." In such a game the subject of common interest may be analyzed and dissected from many points of view provided by those who take part. Clearly, this can be useful. Yet, the purpose of a game is normally "to win" and in this case winning means to have one's views accepted by the group. You might occasionally accept part of another person's view in order to strengthen your own, but you fundamentally want your view to prevail." A sustained emphasis on winning is not compatible, however, with giving first priority to coherence and truth. Bohm suggests that what is needed to bring about such a change of priorities is "dialogue," which is a different mode of communication.

By contrast with discussion, the word "dialogue" comes from the Greek *dialogos*. *Dia* means through. *Logos* means the word, or more broadly, the meaning. Bohm suggests that the original meaning of dialogue was the "meaning passing or moving through . . . a free flow of meaning between people, in the sense of a stream that flows between two banks." In dialogue, Bohm contends, a group accesses a larger "pool of common meaning," which cannot be ac-

cessed individually. "The whole organizes the parts," rather than trying to pull the parts into a whole.

The purpose of a dialogue is to go beyond any one individual's understanding. "We are not trying to win in a dialogue. We all win if we are doing it right." In dialogue, individuals gain insights that simply could not be achieved individually. "A new kind of mind begins to come into being which is based on the development of a common meaning . . . People are no longer primarily in opposition, nor can they said to be interacting, rather they are participating in this pool of common meaning, which is capable of constant development and change."

In dialogue, a group explores complex difficult issues from many points of view. Individuals suspend their assumptions but they communicate their assumptions freely. The result is a free exploration that brings to the surface the full depth of people's experience and thought, and yet can move beyond their individual views.

"The purpose of dialogue," Bohm suggests, "is to reveal the incoherence in our thought." There are three types of incoherence. "Thought denies that it is participative." Thought stops tracking reality and "just goes, like a program." And thought establishes its own standard of reference for fixing problems, problems which it contributed to creating in the first place.

To illustrate, consider prejudice. Once a person begins to accept a stereotype of a particular group, that "thought" becomes an active agent, "participating" in shaping how he or she interacts with another person who falls into that stereotyped class. In turn, the tone of their interaction influences the other person's behavior. The prejudiced person can't see how his prejudice shapes what he "sees" and how he acts. In some sense, if he did, he would no longer be prejudiced. To operate, the "thought" of prejudice must remain hidden to its holder.

"Thought presents itself (stands in front) of us and pretends that it does not represent." We are like actors who forget they are playing a role. We become trapped in the theater of our thoughts (the words "theater" and "theory" have the same root—*theoria*—"to look at"). This is when thought starts, in Bohm's words, to become "incoherent." "Reality may change but the theater continues." We operate in the theater, defining problems, taking actions, "solving problems," losing touch with the larger reality from which the theater is generated.

Dialogue is a way of helping people to "see the representative and

participatory nature of thought [and] . . . to become more sensitive to and make it safe to acknowledge the incoherence in our thought." *In dialogue people become observers of their own thinking.*

What they observe is that their thinking is active. For example, when a conflict surfaces in a dialogue people are likely to realize that there is a tension, but the tension arises, literally, from our thoughts. People will say, "It is our thoughts and the way we hold on to them that are in conflict, not us." Once people see the participatory nature of their thought, they begin to separate themselves from their thought. They begin to take a more creative, less reactive, stance toward their thought.

People in dialogue also begin to observe the collective nature of thought. Bohm says that "Most thought is collective in origin. Each individual does something with it," but originates collectively by and large. "Language, for example, is entirely collective," says Bohm. "And without language, thought as we know it couldn't be there." Most of the assumptions we hold were acquired from the pool of culturally acceptable assumptions. Few of us learn truly to "think for ourselves." He or she who does is sure, as Emerson said long ago, "to be misunderstood."

They also begin to observe the difference between "thinking" as an ongoing process as distinct from "thoughts," the results of that process. This is very important, according to Bohm, to begin correcting the incoherence in our thinking.

If collective thinking is an ongoing stream, "thoughts" are like leaves floating on the surface that wash up on the banks. We gather in the leaves, which we experience as "thoughts." We misperceive the thoughts as our own, because we fail to see the stream of collective thinking from which they arise.

In dialogue, people begin to see the stream that flows between the banks. They begin to "participate in this pool of common meaning, which is capable of constant development and change." Bohm believes that our normal processes of thought are like a "coarse net that gathers in only the coarsest elements of the stream. In dialogue, a "kind of sensitivity" develops that goes beyond what we normally recognize as thinking. This sensitivity is "a fine net" capable of gathering in the subtle meanings in the flow of thinking. Bohm believes this sensitivity lies at the root of real intelligence.

So, according to Bohm, collective learning is not only possible but vital to realize the potentials of human intelligence. "Through dialogue people can help each other to become aware of the incoher-

ence in each other's thoughts, and in this way the collective thought becomes more and more coherent [from the Latin *cohaerere*—"hanging together"]. It is difficult to give a simple definition of coherence, beyond saying that one may sense it as order, consistency, beauty, or harmony.

The main point, however, is not to strive for some abstract ideal of coherence. It is rather for all the participants to work together to become sensitive to all the possible forms of *incoherence*. Incoherence may be indicated by contradictions and confusion but more basically it is seen by the fact that our thinking is producing consequences that we don't really want.

Bohm identifies three basic conditions that are necessary for dialogue:

1. all participants must "suspend" their assumptions, literally to hold them "as if suspended before us";
2. all participants must regard one another as colleagues;
3. there must be a "facilitator" who "holds the context" of dialogue.

These conditions contribute to allowing the "free flow of meaning" to pass through a group, by diminishing resistance to the flow. Just as resistance in an electrical circuit causes the flow of current to generate heat (wasted energy), so does the normal functioning of a group dissipate energy. In dialogue there is "cool energy, like a superconductor." "Hot topics," subjects that would otherwise become sources of emotional discord and fractiousness become discussable. Even more, they become windows to deeper insights.

Suspending Assumptions. To "suspend" one's assumptions means to hold them, "as it were, 'hanging in front of you,' constantly accessible to questioning and observation." This does not mean throwing our assumptions, suppressing them, or avoiding their expression. Nor, in any way, does it say that having opinions is "bad," or that we should eliminate subjectivism. Rather, it means being aware of our assumptions and holding them up for examination. This cannot be done if we are defending our opinions. Nor, can it be done if we are unaware of our assumptions, or unaware that our views are based on *assumptions*, rather than incontrovertible fact.

Bohm argues that once an individual "digs in his or her heels" and decides "this is the way it is," the flow of dialogue is blocked. This

requires operating on the "knife edge," as Bohm puts it, because "the mind wants to keep moving away from suspending assumptions . . . to adopting non-negotiable and rigid opinions which we then feel compelled to defend."

For example, in a recent dialogue session involving a top management team of a highly successful technology company (reported in detail below), people perceived a deep "split" in the organization between R&D and everyone else, a split due to R&D's exalted role at the company. This split had its roots in the firm's history of a string of dramatic product innovations over the past thirty years, literally pioneering several dramatic new products that in turn became industry standards. Product innovation was the cornerstone of the firm's reputation in the marketplace. Thus, no one felt able to talk about the "split," even though it was creating many problems. To do so might have challenged the long-cherished value of technology leadership and of giving highly creative engineers the autonomy to pursue their product visions. Moreover, the number-two person in R&D was in the meeting.

When the condition of "suspending all assumptions" was discussed, the head of marketing asked, "All assumptions?" When he received an affirmative answer, he looked perplexed. Later, as the session continued, he acknowledged that he held the assumption that R&D saw itself as the "keeper of the flame" for the organization, and that he further assumed that this made them unapproachable regarding market information that might influence product development. This led to the R&D manager responding that he too assumed that others saw him in this light, and that, to everyone's surprise, he felt that this assumption limited his and the R&D organization's effectiveness. Both shared these assumptions *as assumptions*, not proven fact. As a result, the ensuing dialogue opened up into a dramatic exploration of views that was unprecedented in its candor and its strategy implications.

"Suspending assumptions" is a lot like seeing "leaps of abstraction" and "inquiring into the reasoning behind the abstraction," basic reflection and inquiry skills developed in Chapter 10, "Mental Models." But in dialogue, suspending assumptions must be done collectively. The team's discipline of holding assumptions "suspended" allowed the team members to see their own assumptions more clearly because they could be held up and contrasted with each others' assumptions. Suspending assumptions is difficult, Bohm maintains, because of "the very nature of thought. Thought contin-

ually deludes us into a view that 'this is the way it is.' " The team discipline of suspending assumptions is an antidote to that delusion.

Seeing Each Other as Colleagues. Dialogue can occur only when a group of people see each other as colleagues in mutual quest for deeper insight and clarity. Thinking of each other as colleagues is important because thought is participative. The conscious act of thinking of each other as colleagues contributes toward interacting as colleagues. This may sound simple, but it can make a profound difference.

Seeing each other as colleagues is critical to establish a positive tone and to offset the vulnerability that dialogue brings. In dialogue people actually feel as if they are building something, a new deeper understanding. Seeing each other as colleagues and friends, while it may sound simple, proves to be extremely important. We talk differently with friends from the way we do with people who are not friends. Interestingly, as dialogue develops, team members will find this feeling of friendship developing even towards others with whom they do not have much in common. What is necessary going in is the *willingness* to consider each other as colleagues. In addition, there is a certain vulnerability to holding assumptions in suspension. Treating each other as colleagues acknowledges the mutual risk and establishes the sense of safety in facing the risk.

Colleagueship does not mean that you need to agree or share the same views. On the contrary, the real power of seeing each other as colleagues comes into play when there are differences of view. It is easy to feel collegial when everyone agrees. When there are significant disagreements, it is more difficult. But the payoff is also much greater. Choosing to view "adversaries" as "colleagues with different views" has the greatest benefits.

Bohm has expressed doubts about the possibility of dialogue in organizations because of the condition of colleagueship: "Hierarchy is antithetical to dialogue, and it is difficult to escape hierarchy in organizations." He asks: "Can those in authority really 'level' with those in subordinate positions?" Such questions have several operational implications for organizational teams. First, everyone involved must truly *want* the benefits of dialogue more than he wants to hold onto his privileges of rank. If one person is used to having his view prevail because he is the most senior person, then that privilege must be surrendered in dialogue. If one person is used to withholding his views because he is more junior, then that security of nondisclosure must also be surrendered. Fear and judgment must

give way. Dialogue is "playful"; it requires the willingness to play with new ideas, to examine them and test them. As soon as we become overly concerned with "who said what," or "not saying something stupid," the playfulness will evaporate.

These conditions cannot be taken lightly, but we have found many organizational teams consistently up to the challenge if everyone knows what will be expected of him in advance. Deep down, there is a longing for dialogue, especially when focused on issues of the utmost importance to us. But that doesn't mean dialogue is always possible in organizations. If all participants are not willing to live by the conditions of suspending assumptions and colleagueship, dialogue will not be possible.

A Facilitator Who "Holds the Context" of Dialogue. In the absence of a skilled facilitator, our habits of thought continually pull us toward discussion and away from dialogue. This is especially true in the early stages of developing dialogue as a team discipline. We take what "presents itself" in our thoughts as literal, rather than as a representation. We believe in our own views and want them to prevail. We are worried about suspending our assumptions publicly. We may even be uncertain if it is psychologically safe to suspend "all assumptions" — "After all, aren't there some assumptions that I must hold on to or lose my sense of identity?"

The facilitator of a dialogue session carries out many of the basic duties of a good "process facilitator." These functions include helping people maintain ownership of the process and the outcomes—we are responsible for what is happening. If people start to harbor reservations that "so and so" won't let us talk about this, that constitutes an assumption not held in suspension. The facilitator also must keep the dialogue moving. If any one individual should start to divert the process to a discussion when a discussion is not actually what is called for, this needs to be identified, and the group asked whether the conditions for dialogue are continuing to be met. The facilitator always walks a careful line between being knowledgeable and helpful in the process at hand, and yet not taking on the "expert" or "doctor" mantle that would shift attention away from the members of the team, and their own ideas and responsibility.⁶

But, in dialogue the facilitator also does something more. His understanding of dialogue allows him to influence the flow of development simply through participating. For example, after someone has made an observation, the facilitator may say, "But the opposite may also be true." Beyond such reminders of the conditions for dialogue,

the facilitator's participation demonstrates dialogue. The artistry of dialogue lies in experiencing the flow of meaning and seeing the one thing that needs to be said now. Like the Quakers, who enjoin members to say not simply whatever pops into their heads but only those thoughts that are compelling (and which cause the speaker to *quake* from the need to speak them), the facilitator says only what is needed at each point in time. This deepens others' appreciation of dialogue more than any abstract explanation can ever do.

As teams develop experience and skill in dialogue, the role of the facilitator becomes less crucial and he or she can gradually become just one of the participants. Dialogue emerges from the "leaderless" group once the team members have developed their skill and understanding. In societies where dialogue is an ongoing discipline, there usually are no appointed facilitators. For example, many American Indian tribes cultivated dialogue to a high art without formal facilitators. Shamen and other wise men had special roles, but the group was capable of entering a dialogue on its own.

Balancing Dialogue and Discussion. In team learning, discussion is the necessary counterpart of dialogue. In a discussion, different views are presented and defended, and as explained earlier this may provide a useful analysis of the whole situation. In dialogue, different views are presented as a means toward discovering a new view. In a discussion, decisions are made. In a dialogue, complex issues are explored. When a team must reach agreement and decisions must be taken, some discussion is needed. On the basis of a commonly agreed analysis, alternative views need to be weighed and a preferred view selected (which may be one of the original alternatives or a new view that emerges from the discussion). When they are productive, discussions converge on a conclusion or course of action. On the other hand, dialogues are diverging; they do not seek agreement, but a richer grasp of complex issues. Both dialogue and discussion can lead to new courses of action; but actions are often the focus of discussion, whereas new actions emerge as a by-product of dialogue.

A learning team masters movement back and forth between dialogue and discussion. The ground rules are different. The goals are different. Failing to distinguish them, teams usually have neither dialogue nor productive discussions.

A unique relationship develops among team members who enter into dialogue regularly. They develop a deep trust that cannot help but carry over to discussions. They develop a richer understanding

of the uniqueness of each person's point of view. Moreover, they experience how larger understandings emerge by holding one's own point of view "gently." They learn to master the art of holding a position, rather than being "held by their positions." When it is appropriate to defend a point of view, they do it more gracefully and with less rigidity, that is without putting "winning" as a first priority.

Moreover, to a large degree, the skills that allow dialogue are identical to the skills that can make discussions productive rather than destructive. These are the skills of inquiry and reflection, originally discussed in Chapter 10, "Mental Models." In fact, one of the reasons that dialogue is so important is that it offers a safe environment for honing these skills and for discovering the profound group learning that they can lead to.

Reflection, Inquiry, and Dialogue. In David Bohm's thinking we hear deep echoes of the "action science" approach discussed in Chapter 10—the importance of making one's views open to influence; and the problem of confusing our mental models with reality. What makes Bohm's work distinctive is that he is articulating a "new" vision of what can happen in a group that transcends the disabilities identified by the action scientists. Moreover, Bohm's dialogue is a *team discipline*. It cannot be achieved individually.

Part of the vision of dialogue is the assumption of a "larger pool of meaning" accessible only to a group. This idea, while it may appear radical at first, has deep intuitive appeal to managers who have long cultivated the subtler aspects of collective inquiry and consensus building.

Such managers learn early on to distinguish two types of consensus: a "focusing down" type of consensus that seeks the common denominator in multiple individual views, and an "opening up" type of consensus that seeks a picture larger than any one person's point of view. The first type of consensus builds from the "content" of our individual views—discovering what part of my view is shared by you and the others. This is our "common ground," upon which we can all agree.

The second type of consensus builds more from the idea that we each have a "view," a way of looking at reality. Each person's view is a unique perspective on a larger reality. If I can "look out" through your view and you through mine, we will each see something we might not have seen alone.

If dialogue articulates a unique vision of team learning, reflection and inquiry skills may prove essential to realizing that vision. Just as

personal vision provides a foundation for building shared vision, so too do reflection and inquiry skills provide a foundation for dialogue and discussion. Dialogue that is *grounded* in reflection and inquiry skills is likely to be more reliable and less dependent on particulars of circumstance, such as the chemistry among team members.

DEALING WITH "CURRENT REALITY": CONFLICT AND DEFENSIVE ROUTINES

Contrary to popular myth, great teams are not characterized by an absence of conflict. On the contrary, in my experience, one of the most reliable indicators of a team that is continually learning is the visible conflict of ideas. In great teams conflict becomes productive. There may, and often will, be conflict around the vision. In fact, the essence of the "visioning" process lies in the gradual emergence of a shared vision from different personal visions. Even when people share a common vision, they may have many different ideas about how to achieve that vision. The loftier the vision, the more uncertain we are how it is to be achieved. The free flow of conflicting ideas is critical for creative thinking, for discovering new solutions no one individual would have come to on his own. Conflict becomes, in effect, part of the ongoing dialogue.

On the other hand, in mediocre teams, one of two conditions usually surround conflict. Either, there is an appearance of no conflict on the surface, or there is rigid polarization. In the "smooth surface" teams, members believe that they must suppress their conflicting views in order to maintain the team—if each person spoke her or his mind, the team would be torn apart by irreconcilable differences. The polarized team is one where managers "speak out," but conflicting views are deeply entrenched. Everyone knows where everyone else stands, and there is little movement.

For more than twenty-five years, Chris Argyris and his colleagues have studied the dilemma of why bright, capable managers often fail to learn effectively in management teams. Their work suggests that the difference between great teams and mediocre teams lies in how they face conflict and deal with the defensiveness that invariably surrounds conflict. "We are programmed to create defensive routines," says Argyris, "and cover them up with further defensive routines . . . This programming occurs early in life."⁷

Defensive routines, as noted in Chapter 10, "Mental Models," are

entrenched habits we use to protect ourselves from the embarrassment and threat that come with exposing our thinking. Defensive routines form a sort of protective shell around our deepest assumptions, defending us against pain, but also keeping us from learning about the causes of the pain. The source of defensive routines, according to Argyris, is not belief in our views or desire to preserve social relations, as we might tell ourselves, but fear of exposing the thinking that lies behind our views. "Defensive reasoning," says Argyris "... protects us from learning about the validity of our reasoning."⁸ For most of us, exposing our reasoning is threatening because we are afraid that people will find errors in it. The perceived threat from exposing our thinking starts early in life and, for most of us, is steadily reinforced in school—remember the trauma of being called on and not having the "right answer"—and later in work.

Defensive routines are so diverse and so commonplace, they usually go unnoticed. We say, "That's a very interesting idea," when we have no intention of taking the idea seriously. We deliberately confront someone to squash an idea, to avoid having to consider it. Or, in the guise of being helpful, we shelter someone from criticism, but also shelter ourselves from engaging difficult issues. When a difficult issue comes up, we change the subject—ostensibly out of respect for the "manners" of good behavior.

One forceful CEO recently lamented to me about the absence of "real leaders" in his organization. He felt his company was full of compliant people, not committed visionaries. This was especially frustrating to a man who regards himself as a skilled communicator and risk taker. In fact, he is so brilliant at articulating his vision that he intimidates everyone around him. Consequently, his view rarely get challenged publicly. People have learned not to express their own views and visions around him. While he would not see his own forcefulness as a defensive strategy, if he looked carefully, he would see that it functions in exactly that way.

The most effective defensive routines, like that of the forceful CEO, are those we cannot see. Ostensibly, the CEO hoped to provoke others into expressing their thoughts. But his overbearing behavior reliably prevented them from doing so, thereby protecting his own views from challenge. If expressed as a conscious strategy, the defensiveness is transparent: "Keep people on the defensive through intimidation, so they won't confront my thinking." If the CEO saw his strategy presented in such bald terms, he would almost certainly disavow it. The fact that it remains hidden to him keeps it operative.

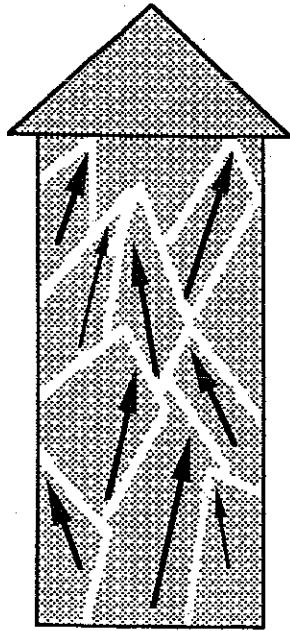
Problems caused by defensive routines compound in organizations where to have incomplete or faulty understanding is a sign of weakness or, worse, incompetence. Deep within the mental models of managers in many organizations is the belief that managers must know what's going on. It is simply unacceptable for managers to act as though they do not know what is causing a problem. Those that reach senior positions are masters at appearing to know what is going on, and those intent on reaching such positions learn early on to develop an air of confident knowledge.

Managers who internalize this mental model find themselves in one of two binds. Some actually internalize this air of confidence and simply believe that they know the answers to most important problems. But, to protect their belief, they must close themselves to alternative views and make themselves uninfluenceable. Their bind is that to remain confident they must remain rigid. Others believe they are expected to know what is causing important problems but, deep down, recognize the uncertainty in their solutions. Their bind is that to maintain a facade of confidence they must obscure their ignorance. Whichever bind they find themselves in, managers who take on the burden of having to know the answers become highly skillful in defensive routines that preserve their aura as capable decision makers by not revealing the thinking behind their decisions.

Such defensiveness becomes an accepted part of organizational culture. Argyris says, "Whenever I ask individuals ... what leads them to play political games in organizations? They respond that that's human nature and the nature of organizations. ... We are the carriers of defensive routines, and organizations are the hosts. Once organizations have been infected, they too become carriers."⁹

Teams are microcosms of the larger organization, so it is not surprising that the defensive patterns characteristic of the larger organization become embedded in the team. In effect, defensive routines block the flow of energy in a team that might otherwise contribute toward a common vision. To the members of a team caught in their defensive routines, they feel very much like walls—blocks and traps that prevent collective learning.

To see how subtle team defensive routines become, consider the case of ATP products: a young division of an innovative, highly decentralized corporation. (The company and individual names are disguised.) Jim Tabor, the thirty-three-year-old division president, was deeply committed to the corporate values of freedom and local autonomy. He believed strongly in ATP's products, which were



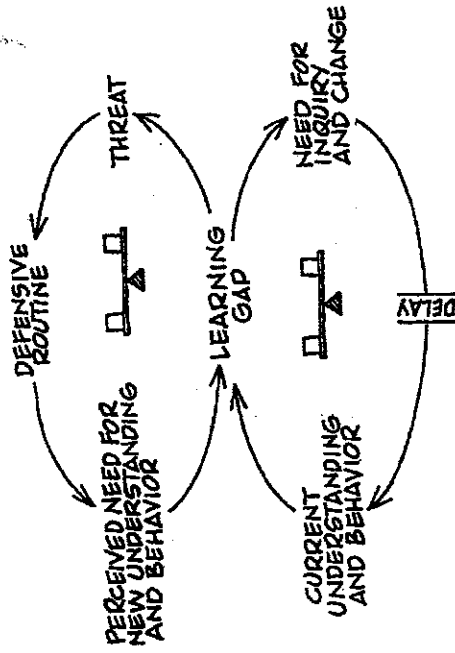
based on a new printed circuit board technology. He was tremendously enthusiastic, a natural cheerleader for his people. In turn, the members of his management team worked long hours and shared his enthusiasm for their prospects.

Their efforts were rewarded with several years of rapid (30 to 50 percent per year) growth in bookings, reaching \$20 million in sales in 1984. However, 1985 witnessed a disastrous collapse in bookings.¹⁰ Two major minicomputer manufacturers had become so convinced of ATP's technology that they had designed the ATP circuit boards into new lines of hardware. But when the 1985 downturn in the minicomputer industry hit, the manufacturers suspended work on the new lines, leaving ATP with a 50 percent shortfall on projected bookings. The business did not bounce back in 1986. Jim Tabor was eventually removed as division president, although he stayed on as engineering manager.

What went wrong at ATP? Through their enthusiasm, the ATP management had locked itself into a strategy that was internally inconsistent. The team had set aggressive growth targets, in part to please the corporate management, but also because of belief in their product. Meeting these targets had created strong pressures on the sales force, to which they had responded by building major business relationships with a few key customers, customers upon whom ATP had become highly dependent. When some of those customers ran into their own business troubles, ATP was doomed.

Why had ATP's management team sanctioned a strategy that left the division so vulnerable? Why did the corporate leadership not intervene to insist that the young division managers diversify their customer base? At the heart of their problem was a set of defensive routines, embedded in a "shifting the burden" structure.

As Argyris says, defensive routines are a response to a problem; here, the problem is a need to learn, arising from a "learning gap"



between what is known and what needs to be known. The "fundamental solution" is inquiry that results eventually in new understanding and new behavior—that is, learning. But the need for learning also creates a threat. Individuals and teams respond defensively to the threat. This leads to the "symptomatic solution": defensive routines that eliminate the learning gap by reducing the *perceived need for learning*.

All the key players at ATP were caught in their own particular defensive routines. Several of ATP's managers had expressed concern about their reliance on a narrow customer base. When the issue was raised in team meetings, everyone agreed it was a problem. But no one did anything about it because everyone was too busy. Driven by their challenging growth targets, ATP's managers had expanded capacity aggressively and created powerful pressures for new order bookings, regardless of where they came from.

The corporate managers to whom Tabor reported were caught in a similar bind. Here too there was concern about ATP's narrow customer base. Privately, some of the corporate managers had questions regarding Tabor's ability to build for long-term growth. But these same executives also believed strongly in a corporate philosophy of not undermining division presidents' authority to run their own businesses. They were uncertain how to raise their qualms without seeming unsupportive of Tabor's leadership, so they made only oblique comments or kept quiet.

On the other side of the table, Jim Tabor had questioned himself, which he was reticent to raise in meetings with his superiors. He had

never been a division president before. He was eager to prove his abilities. He believed deeply in the business's potential and he felt committed to his fellow managers at ATP. He didn't want to let them down, just as he didn't want to let down his superiors. So he didn't talk about his own uneasiness concerning the aggressive growth targets ATP had set.

The conflicts among ATP's management, corporate management, and Tabor were submerged under a surface of defensive routines and thus were never resolved. Within the team, qualms about the basic business strategy were lost in the pressures to meet the targets dictated by the strategy. Tabor's corporate superiors wanted to offer help but didn't want to appear unsupportive. Tabor needed help but he didn't want to appear unconfident. Behind the surface of mutual support, camaraderie, and "all for one" spirit, lay ways of dealing with conflict that ultimately resulted in outcomes contrary to everyone's intentions.

The more effective defensive routines are, the more effectively they cover up underlying problems, the less effectively these problems are faced, and the worse the problems tend to become. The real need to learn didn't go away at ATP. By avoiding the real problems—how to build up a broad customer base—they allowed the problems to get worse. As in all shifting the burden structures, the more teams turn to defensive routines, the more they come to rely on them. "The paradox," writes Argyris, "is that when [defensive routines] succeed in preventing immediate pain they also prevent us from learning how to reduce what causes the pain in the first place."¹¹

As Argyris also says, defensive routines are "self-sealing"—they obscure their own existence. This comes in large measure because we have society-wide norms that say that we *should* be open and that defensiveness is bad. This makes it difficult to acknowledge defensive routines, even if we know that we are being defensive. If Tabor's corporate superiors had stated their strategy explicitly, it would have sounded something like the following: "We are avoiding questioning Jim's abilities, to avoid having to face the conflict that would ensue and to maintain an appearance of support." If such a strategy were stated, they would surely have eschewed it. Likewise, if Tabor had said, "I am avoiding expressing my doubts about how we are managing because I am afraid that it will make me look weak or incompetent," his defensive strategy would have been unsustainable. But no one voiced these feelings because of the same basic

fears that made everyone take up the defensive routine in the first place.

If you can't easily state defensive routines, where is the leverage for reducing them? In most shifting the burden structures, there are two possible areas of leverage: (1) weaken the symptomatic solution and (2) strengthen the fundamental solution. One way of weakening the symptomatic solution is diminishing the emotional threat that prompts the defensive response in the first place. For example, if Tabor had felt comfortable about acknowledging his own uncertainty in front of his corporate superiors, or if they had felt comfortable raising their questions, each would have been less inclined to avoiding fundamental questioning of ATP's strategy.¹² Learning how to deal with defensive routines when they arise would also weaken the symptomatic solution. To retain their power, defensive routines *must remain undiscussable*. Teams stay stuck in their defensive routines only when they pretend that they don't have any defensive routines, that everything is all right, and that they can say "anything."

But how to make them discussable is a challenge. Trying to "fix" another person's defensive routine is almost guaranteed to backfire. For example, try asking someone why he has been behaving defensively. Universally, the first response is a protest: "Me? I'm not behaving defensively!" By focusing attention on the other person, the "confronter" has taken no responsibility for the situation. It *always* takes two (or more) to dance. If we perceive a defensive routine operating, it is a good bet that we are part of it. Skillful managers learn to confront defensiveness without producing more defensiveness.

They do so by self-disclosure and by inquiring into the causes of their own defensiveness. For example, they might say something such as, "I notice that I am feeling threatened by this new proposal. You may be also. Could you help me in seeing where this uneasiness is coming from?" Or, "Is what I am saying making sense? I think that the way I am communicating makes me seem closed and adamant on this point. But I'd like to hear your view so that we can get a more objective picture." (Obviously, it is the spirit of the statements not their specifics that matter.) Both of these statements acknowledge the speaker's experience of uneasiness and invite a joint inquiry into its causes.

The skills for defusing defensive routines are essentially the same skills for strengthening the "fundamental solution" in the shifting

the burden structure—the skills of reflection and mutual inquiry. By inquiring effectively into the causes of the problems at hand—that is, by inquiring in such a way as to reveal your own assumptions and reasoning, make them open to influence, and encourage others to do likewise—defensive routines are less likely to come into play.¹³

While defensive routines can become especially pernicious in a team, on other hand, teams have unique capabilities for transcending defensiveness—if there is genuine commitment to learning. What is required, not surprisingly, is a vision of what we really want, both in terms of business results and how we want to work together, and a ruthless commitment to telling the truth about our “current reality.” In this sense, team learning and building shared vision are sister disciplines. They naturally go together to build “creative tension” in a team.

In the presence of a genuinely shared vision, defensive routines become just another aspect of “current reality.” Like the “structural conflicts” discussed in the chapter on personal mastery, they derive their power from being unrecognized. A team committed to the truth has unique powers to surface and acknowledge their own defensiveness. Then the defensive routines can actually become a source of energy rather than inertia.

Defensive routines can become a surprising ally toward building a learning team by providing a signal when learning is not occurring. Most of us know when we are being defensive, even if we cannot fully identify the source or pattern of our defensiveness. If you think about it, one of the most useful skills of a learning team would be the ability to recognize when people are *not* reflecting on their own assumptions, when they are *not* inquiring into each other's thinking, when they are *not* exposing their thinking in a way that encourages others to inquire into it. When we are feeling defensive, seeking to avoid an issue, thinking we need to protect someone else or ourselves—these are tangible signals that can be used to reestablish a climate of learning. But we must learn to recognize the signals and learn how to acknowledge the defensiveness without provoking more defensiveness.

Defensive routines may signal especially difficult and especially important issues. Often, the stronger the defensiveness, the more important the issue around which people are defending or protecting their views. If these views can be brought out productively, they may provide windows onto each other's thinking. When defensiveness is met by self-disclosure and inquiry balanced with advocacy, team members begin to see more of each other's thinking.

Lastly, as team members learn how to work with rather than against their defensive routines, they build confidence that “we are senior to our defensiveness.” Defensive routines pull down team members. They drain energy and sap people's spirit. When a team sees itself transcend blocks that have been preventing learning, blocks which many felt were inevitable—as Argyris observed, “the nature of organizations”—they gain tangible experience that there may be many aspects of their reality that they have the power to change.

In medieval times, alchemy was a symbol for transformation of what is most common (lead) into what is most precious (gold). So, too, do learning teams practice a special form of alchemy, the transformation of potentially divisive conflict and defensiveness into learning. They do this through their vision and skill. Through dialogue, team members gain tangible experience of the larger intelligence that can operate. This experience strengthens the team members' vision of how they might operate. But unless the team also builds the skills for seeing rather than obscuring current reality, their capacity for learning will be unreliable. Without reflection and inquiry skills, they will get thrown off course when defensiveness arises—their learning will depend on circumstances.

It is not the absence of defensiveness that characterizes learning teams but the way defensiveness is faced. A team committed to learning must be committed not only to telling the truth about what's going on “out there,” in their business reality, but also about what's going on “in here,” within the team itself. To see reality more clearly, we must also see our strategies for obscuring reality.

The power and insight that start to emerge when this happens are considerable. In effect, defensive routines are like safes within which we “lock up” energy that could be directed toward collective learning. As defensiveness becomes “unlocked,” that insight and energy are released, becoming available for building shared understanding and advancing toward what the team members truly want to create.

THE MISSING LINK: PRACTICE

It cannot be stressed too much that team learning is a *team skill*. A group of talented individual learners will not necessarily produce a learning team, any more than a group of talented athletes will produce a great sports team. Learning teams learn how to learn together.

If anything, team skills are *more* challenging to develop than individual skills. This is why learning teams need "practice fields," ways to practice together so that they can develop their collective learning skills. The almost total absence of meaningful "practice" or "rehearsal" is probably the predominant factor that keeps most management teams from being effective learning units.

What exactly is "practice"? Donald Schon, in his book *The Reflective Practitioner*, identifies the essential principles of practice as experimentation in a "virtual world." A virtual world is a "constructed representative of the real world." It can be as simple as the architects' sketchpad:

Here they can draw and talk their moves in a spatial-action language, leaving traces which represent the forms of buildings on the site. Because the drawing reveals qualities and relations unimaginable beforehand, moves can function as experiments . . . [discovering] that building shapes do not fit the slope and that . . . classrooms are too small in scale.¹⁴

The essence of a virtual world is the freedom it allows for experimentation. The pace of action can be slowed down or speeded up. Phenomena that occur very rapidly can be stretched out over time to study more carefully. Phenomena that stretch out over very long periods can be speeded up to see more clearly the consequences of particular actions. No move is irreversible. Actions that cannot be reversed or taken back and redone in the real setting can be redone countless times. Changes in the environment can be eliminated, either completely or partially. Complexity can be simplified by uncoupling variables that are interlocked in reality.

The manipulations that Schon describes in virtual worlds of the architects and other professionals match precisely what happens when the basketball team or the symphony orchestra practices. They vary the pace of the action—by slowing down the music, by running plays in slow motion. They isolate components and simplify the complexity—by playing individual sections, by running plays without a competitor. They reverse what is, in the real performance, irreversible—they replay the same section over and over, they rerun the play over and over.

Interestingly, the few examples in business of teams which learn consistently over a long period of time seem to be exactly those settings where effective virtual worlds operate. For instance, modern advertising practice is based on the concept of a creative team,

where an account supervisor, art director, and copywriter work closely together, often for years. So close are these teams that teammates often switch agencies together, rather than break apart. What makes advertising teams special is that they practice together, as consistently and intensively as the members of a basketball team do. They brainstorm ideas, and then experiment with them, testing them in storyboards or mock-ups, and eventually presenting them—first to higher-ups in the agency, then to the client.

Team learning requires that type of regular practice. But management teams, by and large, are bereft of it. True, they have the abstract, intellectual debates of ideas, and many team members come to learn each others' intellectual opinions, often only too well. But there is nothing akin to a storyboard or a rehearsal. The main product of the team's work is decisions about specific situations, often debated and decided under great time pressure, and each decision is final as soon as it is made. There is no experimentation with decisions; worse still, there is little opportunity to form reasoned assessments of the wisdom of different decisions, and there is no opportunity to step back, as a team, and reflect on how we might arrive at better decisions together.

LEARNING HOW "TO PRACTICE"

Today, the discipline of team learning is, I believe, poised for a breakthrough because we are gradually learning how "to practice." In particular, two distinct "practice fields" are developing. The first involves practicing dialogue, so that a team can begin to develop its *joint skill* in fostering a team IQ that exceeds individual IQs. The second involves creating "learning laboratories" and "micro-worlds," (Chapter 17), computer-supported environments where team learning confronts the dynamics of complex business realities.

Dialogue sessions allow a team to come together to "practice" dialogue and develop the skills it demands. The basic conditions for such a session include:

1. having all members of the "team" (those who need one another to act) together
2. explaining the ground rules of dialogue
3. enforcing those ground rules so that if anyone finds himself unable to "suspend" his assumptions, the team acknowledges that it is now "discussing" not "dialoguing"

4. making possible, indeed encouraging, team members to raise the most difficult, subtle, and conflictual issues essential to the team's work

We think of dialogue sessions as "practice" because they are designed to foster team skills. Yet, the practical results of such sessions can be significant.

Recently, the management team at DataQuest Drives, a leading manufacturer of disk drives and related computer peripherals held such a session.¹⁵ As mentioned earlier, DataQuest is a firm with a well-established market image for technological innovation. In addition to being dominated internally by R&D, DataQuest's charismatic founder recently retired after shepherding the firm's successful growth for more than thirty years. After a year of spotty business success with the new management in place, things were rocky. DataQuest's new president, John McCarthy, faced the daunting challenge of filling the shoes of a legend, facing more difficult business conditions than the legend ever had to worry about (the entire market was overbuilt), and with a team of strong players who had not yet begun to work as a whole.

On the heels of a tumultuous reorganization, McCarthy's management team came together for two days with the following invitation from the president:

MEMO TO:

FROM John McCarthy
SUBJECT *Special Meeting*

As you are well aware, we are accelerating change and I need your input prior to finalizing our strategies and implementation plans. I believe there is opportunity for us to improve our understanding and the way we implement change.

The session is intended to be the first in a series of dialogues to help us clarify the assumptions, programs, and responsibilities underlying the implementation of our key strategies. We have the view that only through the input from a larger group can we execute our changes and programs in a coherent and unambiguous way. The purpose of this two-day session is to gain understanding of each other's view by thinking through the major issues facing us at this time.

This session is not an attempt to make decisions as much as a setting to examine directions and the assumptions underlying them.

We have a second goal. This is to be together as colleagues, leaving all our roles and positions at the door. In this dialogue we should consider ourselves equals who still have substantive knowledge of the situations we are considering.

We see this meeting as the first step toward establishing ongoing substantive dialogue among us. Our experience begins to show that to engage in dialogue takes practice, and we should expect to be learning how to do this in this session. Several ground rules are helpful and we invite you to participate by following these as much as you can.

Suggested Ground Rules

1. Suspension of assumptions. Typically people take a position and defend it, holding to it. Others take up opposite positions and polarization results. In this session, we would like to examine some of our assumptions underlying our direction and strategy and not seek to defend them.
2. Acting as colleagues. We are asking everyone to leave his or her position at the door. There will be no particular hierarchy in this meeting, except for the facilitator, who will, hopefully, keep us on track.
3. Spirit of inquiry. We would like to have people being to explore the thinking behind their views, the deeper assumptions they may hold, and the evidence they have that leads them to these views. So it will be fair to begin to ask other questions such as "What leads you to say or believe this?" or "What makes you ask about this?"

Over the two days, many previously closed subjects became open, blocks to communication came down, and rifts were healed. None was more important for the organization than that between R&D and marketing and sales.

Joe Grauweiler, the head of R&D, and Charlie Smyth, the head of Marketing and Sales have had a friendly albeit distant relationship for over ten years. Both are deeply proud of what DataQuest has

achieved. Both believe deeply in its commitment to "participative management" and its related ideals about people and the organization. Yet, both are caught in a conflict that epitomizes the forces that are restraining DataQuest Drives' continuing growth. R&D is viewed as artists, designers, creators. Marketing sees itself, and is seen by others, as "the great unwashed," dealing in the messy world of sleazy dealers' bargain making (who have no particular loyalty to DataQuest), price discounting, and irate customers.

The "two cultures" of R&D and Marketing are reflected in numerous organizational conflicts. For example, both Grauweiler and Smyth have their own product budgets. Grauweiler's is for new development. Smyth's is for acquisitions, buying smaller companies whose products round out DataQuest's and make the firm, in Smyth's eyes, more competitive in the marketplace. There is no integrated product plan uniting the two. Marketing felt compelled to this "end run" because they saw R&D as being unresponsive to the full range of customer needs. R&D, it turns out, saw itself being cut out of important product decisions. As the dialogue unfolded, Grauweiler expressed a level of concern that came as a surprise, because people assumed that R&D valued its autonomy:

GRAUWEILER: Let me offer a way to look at the issue of product strategy, which I submit today is being viewed as sort of an arm wrestle. We have, in effect, amassed a two pronged product strategy. We've not been overt or clear about it. My evidence is that we've not really brought the full competencies of the organization together to understand what amounts really to DataQuest's make/buy decision on product. That being the case, we have one group of people spending money on some product programs with a certain level of confidence and another group of people spending money on product programs with a different view. And "never the twain shall meet." That's just insane to me. There should be a singular, overriding product strategy that supports R&D and marketing. And, beneath that, come any number of make/buy decisions . . .

MACCARTHY: I think we all fundamentally agree with that.

GRAUWEILER: Could I submit that we are telegraphing the opposite.

OTHERS: Yes.

GRAUWEILER: It's more acute than just not doing it well. We're being perceived as doing the opposite.

SMYTH: I was trying to get back and think of the rationale for why the make versus buy decision is a different and separated decision. At this point, it appears disjointed . . . One is, in my view, problem-solving, research-driven focus. The DataQuest label . . . On the other hand, in other products that DataQuest has not directed resources to, we are doing that through "buy." We're acquiring the access to that in a way other than DataQuest's research . . . because it is more market reactive than fundamental problem-solution driven. And we don't want to pollute, you might say, the purity of what it is we want to do with research. . . .

PHILLIPS (HUMAN RESOURCE VP): I think that has put us in conflict.

GRAUWEILER: Absolutely! That's the problem. That's the prejudice that I don't tolerate. How about the people who you're depending upon having some say in it? And don't protect my purity for me.

SMYTH: Well . . . I'm not uncomfortable with the rationale for what we have done. There may be a better way to do it. But I do think that, at some point in our history here, we decided not to invest in vertical storage disk files . . . just conventional junk that the market will buy that's not innovative. It's not interesting . . . And we wanted to allocate our finite resources and talent to what DataQuest's image is, which is research, innovative, product-driven . . . So we went out and acquired the more pedestrian stuff.

PHILLIPS: If we are just blue-skying it today, let me tell you what has always confused me. And I'm laying that on both marketing and R&D. "Research-driven product company" is how we've always talked about ourselves. And when we talk that way, it kind of puts us to say that any product that doesn't have the DataQuest investment in innovative research is outside DataQuest. Somehow or another, we've structured ourselves that way and become in competition . . .

MACCARTHY: That's one definition of research-based. Do you know the other definition? The other definition is that nobody else in DataQuest does any research and development if it's not on a new product.

GRAUWEILER: I don't like that one either.

PHILLIPS: You hit point number two, because I was saying to myself . . . if you take the overriding direction statement as it is

on the board, whether or not your decision is to make or buy, it still has to be research- and development-driven. It's got to be innovative . . .

MACCARTHY: I think we're onto something here. What we're saying is that the company in the past has been locked in. The only thing that made us great was product research and development. So we're having this incredible tension here. I would suggest that we bought subsidiaries to launch us . . . I think the dilemma that you're [Grauweiler] helping us to see is that . . . we should be offering whatever products the customer fundamentally needs. But then there's the other side that says, "But if it come out of DataQuest's research, it has to carry a DataQuest label." What you're saying is that's not true. That [what label to put on] ought to be a marketing decision based on what positioning you're trying to do. That's very helpful . . . because most of us have felt that if a product is not going to have a DataQuest label on it, you won't develop it in the first place.

HADLY (MANUFACTURING VP): But that's also making a statement that the entire company is research-driven, not just R&D, that other innovative ideas including product can come from other sides of the company. It doesn't all have to funnel through R&D.

GRAUWEILER: That's fine, but I don't know why that needs to be said. I'm not challenging you at all. But I think there's an inference here again that troubles me. I feel saddled representing the R&D legacy of the past, which I don't buy into. And I find it ironic that the more I work desperately to move our organization forward to the new reality, the more you're convinced to hold us back where we used to be! And I find that a strange dilemma.

HADLY: And conversely, there's a feeling here that that's the same on the other side.

ALL: Yes.

HADLY: We try to move the organization forward . . . we seem to be held back because you can't be research-driven and innovative unless it comes through R&D.

GRAUWEILER: I never said that! . . . Now, could I play it a different way? I think the statement of a research-driven product company is a correct statement. I firmly believe that the company's success will, in part . . . always be governed by our prowess with products. Anything that I see that starts to erode

that orientation scares me to death. You have to have good stuff . . . good services and good products. I don't say that implies how you get them. Or that there's only one way to get good product . . . We don't have a very concerted or collaborative process in place to get that, but I know we have to.

MACCARTHY: Now the other side would be this—I believe some of the work that Charlie [Smyth] has done in marketing and in distribution [developing a new network of exclusive DataQuest dealers] is as much "R&D effort" as what goes on in R&D.

GRAUWEILER: I totally believe that.

MACCARTHY: And yet we suffer that, if the investment made there doesn't become instantaneously converted into a return, there's an incredible criticism of the organization.

GRAUWEILER: Welcome to the world of R&D.

SMYTH: There are two points I want to make from this. It looks to me like your efforts could be put to developing a product that could be manufactured outside . . . it looks to me that we've thrown away some development efforts that could have been licensed to other companies even . . . I've always thought it was crazy that, in order to get a product out of R&D, you had to put a DataQuest label on it.

GRAUWEILER: That's been a constraint on our program . . .

SMYTH: Now, the other thing is that we're not communicating in any kind of rich way between marketing and R&D. As a matter of fact, it's getting more separate . . . If we're going to work on the total needs of the customer . . . there has to be a way that that's seen in a lot of different places in the company.

HADLY: You started off by asking why is there this tension between R&D and marketing. You also have the tension between manufacturing and finance. . . . To me it comes down to two words: "Empowerment versus Control." We tend to be a very control-oriented organization overall . . . Because they've got control and won't let me in, I'm going to go over here and do my own thing because I feel powerless to affect that at all. That's where I think some of it comes in—not by anything we necessarily want to have happen, but it's happening all over the company.

The results of this dialogue were nothing short of remarkable for DataQuest. First, a thirty-year rift between R&D and marketing started to be healed. Second, the "end run" that marketing had been

doing to augment product lines was no longer necessary. R&D was interested and wanted to participate in studying acquisitions as well as developing products that could be marketed under other labels, as part of one coordinated product plan. The sacrosanct DataQuest label was not limited to products developed by DataQuest's own R&D but should be used based on "market considerations." The R&D head made it clear that he did not want to be fit into an old stereotype that R&D alone was responsible for innovation. The other functions, in his view, were equal partners in innovation, by innovating in processes, in understanding customer needs, and in business management. Moreover the R&D head was angry that he was even being saddled with an old stereotype.

TEAM LEARNING AND THE FIFTH DISCIPLINE

Both the perspective and the tools of systems thinking figure centrally in team learning.

David Bohm's work on dialogue is informed throughout by a systemic perspective. In fact, an integrating thread throughout Bohm's work has been to continue to advance the perspective of "wholeness" in physics. Bohm's primary critique of contemporary thought, the "pollution" in the stream of collective thinking, is "fragmentation," the "tendency of thought to break things apart."

Likewise, the approach taken by learning teams to defensive routines is intrinsically systemic. Rather than seeing the defensiveness in terms of others' behavior, the leverage lies in recognizing defensive routines as joint creations and to find our own role in creating and sustaining them. If we only look for defensive routines "out there," and fail to see them "in here" our efforts to deal with them just increase the defensiveness.

The tools of systems thinking are also important because virtually all the prime tasks of management teams—developing strategy, shaping visions, designing policy and organizational structures—involve wrestling with enormous complexity. Furthermore, this complexity does not "stay put." Each situation is in a continual state of flux.

Perhaps the single greatest liability of management teams is that they confront these complex, dynamic realities with a language designed for simple, static problems. Management consultant Charles

Kiefer says it this way: "Reality is composed of many simultaneous, interdependent cause-effect-cause relationships. From this reality, normal verbal language extracts simple, linear cause-effect chains. This accounts for a great deal of why managers are so drawn to low leverage interventions." For example, if the problem is long product development times we hire more engineers to reduce times; if the problem is low profits we cut costs; if the problem is falling market share we cut price to boost share.

Because we see the world in simple obvious terms, we come to believe in simple, obvious solutions. This leads to the frenzied search for simple "fixes," a task that preoccupies the time of many managers. John Manooogian, director of Ford's "Project Alpha," says, "The find and fix mentality results in an endless stream of short-term fixes, which appear to make problems go away, except they keep returning. So, then, we go off and fix them again. The find and fix experts will go on forever."

The problems compound in a diverse, cross-functional team such as a management team. Each team member carries his or her own, predominantly linear mental models. Each person's mental model focuses on different parts of the system. Each emphasizes different cause-effect chains. This makes it virtually impossible for a shared picture of the system as a whole to emerge in normal conversation. Is it any wonder that the strategies that emerge often represent watered-down compromises based on murky assumptions, full of internal contradictions, which the rest of the organization can't understand, let alone implement? The team members genuinely resemble the proverbial blind men and the elephant—each knows the part of the elephant within his grasp, each believes the whole must look like the piece he holds, and each feels that his understanding is the correct one.

This situation is unlikely to improve until teams share a new language for describing complexity. Today, the only universal language of business is financial accounting. But accounting deals with detail of complexity not dynamic complexity. It offers "snapshots" of the financial conditions of a business, but it does not describe how those conditions were created. Today, there are several tools and frameworks that provide alternatives to traditional accounting as a business language. These include competitive analysis, "Total Quality," and, though much less widely used, scenario methods such as those developed at Shell.¹⁶ But none of these tools deals with dynamic complexity very well or at all.

The systems archetypes offer a potentially powerful basis for a language by which management teams can deal productively with complexity. As teams such as the one at ATP master the basic archetypes, their conversations will naturally become more and more conversations about underlying structures and leverage and less and less predominated by crises and short-term "fixes."

If the ATP management team had been fluent in the language of the systems archetypes, the implications of their narrow-minded focus on meeting monthly and quarterly sales targets would have been inescapable. In particular, they would have realized that *when they increased pressures to meet sales targets*, they communicated very clearly to the salesforce the message: "When push comes to shove, it's better to pursue the low-risk additional sale to a current customer than the high-risk effort to create a new customer." This "shifted the burden" from building their customer base to making more sales to existing customers, thereby making them more dependent on a few key customers.

If the corporate managers had likewise been able to see and discuss this structure, they would have been able to surface their concerns about Jim Tabor's management more effectively. Rather than wrestling with how they could raise issues that might appear critical of Tabor's management skills and unsupportive, they could have simply laid out the two feedback processes and inquired into how *any of them* could be more confident that the fundamental solution of broadening the customer base was receiving adequate attention.

When the systems archetypes are used in conversations about complex and potentially conflictual management issues, reliably, they "objectify" the conversation. The conversation becomes about "the structure," the systemic forces at play, not about personalities and leadership styles. Difficult questions can be raised in a way that does not carry innuendos of management incompetence or implied criticism. Rather, people are asking, "Is the burden shifting to selling to current customers versus broadening our customer base?" "How would we know if it was?" This, of course, is precisely the benefit of a *language for complexity*—it makes it easier to discuss complex issues objectively and dispassionately.

Without a shared language for dealing with complexity, team learning is limited. If one member of a team sees a problem more systematically than others, that person's insight will get reliably discounted—if for no other reason than the intrinsic biases toward linear views in our normal everyday language. On the other hand, the

benefits of teams developing fluency in the language of the systems archetypes are enormous, *and* the difficulties of mastering the language are actually reduced in a team. As David Bohm says, language is collective. Learning a new language, by definition, means learning how to converse with one another in the language. There is simply no more effective way to learn a language than through use, which is exactly what happens when a team starts to learn the language of systems thinking.